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ORAL HEALTH DURING PREGNANCY: COMMON CONDITIONS, BARRIERS TO DENTAL CARE AND CLINICAL MANAGEMENT - A NARRATIVE REVIEW

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ABSTRACT

Objectives: This narrative review aimed to summarize current evidence on oral health during pregnancy, focusing on common oral conditions, barriers to dental care, dental treatment and its safety, periodontal care, prevention and oral health education.

Methods: Full-text publications were identified through PubMed, Scopus, and Google Scholar. Studies published between 2000 and 2026 were considered. Search terms covered pregnancy, oral health, gingivitis, periodontitis, dental caries, dental erosion, barriers to dental care, dental treatment, dental radiography, local anesthesia, medications, periodontal treatment, and oral health education. Original studies, systematic reviews, meta-analyses, scoping reviews, relevant review articles, clinical guidelines, and professional recommendations were included.

Key Findings: Common oral health problems during pregnancy include gingivitis, periodontal disease, dental caries, and dental erosion. Changes in diet, oral hygiene, vomiting, and the oral environment may contribute to some of these conditions. Periodontitis has been associated with adverse pregnancy outcomes in observational studies, although a causal relationship has not been established. Necessary dental treatment, including radiography, local anesthesia, restorative and endodontic treatment, and extractions, can generally be performed safely during pregnancy when clinically indicated. Many pregnant women nevertheless delay or avoid dental care because of safety concerns, misconceptions, financial and organizational barriers, and gaps in knowledge among patients and healthcare professionals.

Conclusions: Oral health should be included as part of prenatal care. Prevention, timely treatment, patient education, and closer cooperation between dental and prenatal care providers may improve oral health and access to dental care during pregnancy.

KEYWORDS

Pregnancy, Oral Health, Dental Care, Periodontal Disease, Oral Health Education, Barriers to Dental Care

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Introduction

Oral health is important for the quality of life of pregnant women. Oral health problems may affect comfort, well-being, and everyday functioning during pregnancy. Available reviews indicate that dental problems during this period are associated with lower oral health-related quality of life (OHRQoL) [1,2]. They may cause discomfort and affect physical functioning and the ability to perform daily activities, meaning that their impact is not limited to local symptoms within the oral cavity [1,2].

Pregnant women are in regular contact with healthcare services, making pregnancy an opportunity to pay greater attention to oral health. Prenatal visits can be used to offer basic oral health advice, identify symptoms reported by the patient, and refer her to a dentist when necessary [3,4]. In practice, however, oral health is not always adequately addressed as part of prenatal care. The use of dental services among pregnant women varies considerably across studied populations and remains low in many of them [5,6].

Guidelines on dental care during pregnancy are currently available for both dental professionals and other healthcare providers [7,8]. Nevertheless, their recommendations are not always fully implemented in clinical practice. Reviews focusing on prenatal care providers have identified, among other issues, problems with referring patients to dentists and insufficient coordination between dental and prenatal care [3,4].

The aim of this narrative review was to summarize current knowledge on oral health during pregnancy, with particular emphasis on the most common clinical conditions, the use of dental care, and principles of prevention and safe dental treatment for pregnant women.

Methodology

This narrative review was based on full-text scientific publications identified through PubMed, Scopus, and Google Scholar. The search included terms such as *pregnancy*, *oral health*, *dental care*, *gingivitis*, *periodontitis*, *periodontal disease*, *dental caries*, *dental erosion*, *pyogenic granuloma*, *barriers to dental care*, *dental treatment*, *dental radiography*, *local anesthesia*, *medications in pregnancy*, *periodontal treatment*, *oral health education*, and *oral health promotion*. The terms were combined using the Boolean operators AND and OR.

Publications from 2000 to 2026 were considered. Articles were selected based on their titles and abstracts and subsequently assessed in full text. Original studies, systematic reviews, meta-analyses, scoping reviews, and other relevant review articles were included if they addressed oral health conditions during pregnancy, barriers to dental care, the safety or management of dental treatment, or oral health prevention and education in pregnant women. Clinical guidelines, professional recommendations, and expert consensus statements from relevant organizations were also considered.

The selected studies were grouped according to the main themes identified in the literature, including common oral health conditions during pregnancy, barriers to dental care, dental treatment and clinical management, periodontal care, and prevention and oral health education.

Results

1. Common Oral Health Conditions During Pregnancy

Pregnancy is associated with a number of physiological changes that may affect oral health. The most commonly reported problems in pregnant women include gingivitis, periodontal disease, and dental caries, as well as oral mucosal changes, including pyogenic granuloma, commonly referred to during pregnancy as a “pregnancy tumor”. Dental erosion is also observed in some patients [9]. Not all of these conditions are a direct consequence of pregnancy. Their occurrence or severity may be influenced by pre-existing susceptibility, the presence of biofilm, changes in dietary and oral hygiene habits, and temporary changes in the oral environment [9-12].

Pregnancy gingivitis may present clinically with redness, swelling, and an increased tendency of the gingiva to bleed. Pregnancy itself is not a direct cause of gingivitis, as bacterial biofilm remains the key factor, while hormonal changes occurring during pregnancy may enhance the gingival tissue response to local irritants [10,11]. As a result, inflammation may be more pronounced despite similar levels of dental plaque. Symptoms usually become more noticeable as pregnancy progresses and may partially resolve after delivery, particularly with good plaque control. Periodontitis may also be present in some patients [9-11].

A possible association between periodontal disease and pregnancy outcomes has been investigated in many studies. Observational studies have linked periodontitis with preterm birth, low birth weight, and preeclampsia [13-15]. These findings should not, however, be interpreted as evidence of a direct causal relationship, as available reviews point to considerable heterogeneity among studies, differences in the definitions of periodontitis, methods used to assess periodontal status, and characteristics of the populations studied [13,14].

Dental caries is another common problem. There is no evidence that pregnancy itself causes tooth demineralization or leads to calcium loss from the enamel [10]. However, several factors present during pregnancy may increase the risk of caries, including more frequent snacking and greater exposure to readily fermentable carbohydrates, as well as nausea and vomiting, which may make it more difficult to maintain adequate oral hygiene and may affect salivary properties [9,10,12]. A meta-analysis by Yousefi et al. found changes in several salivary parameters associated with caries risk, including pH, calcium and phosphate concentrations, and *Streptococcus mutans* counts across different trimesters [12]. A more recent study also reported a decrease in salivary pH during pregnancy, although DMFT (Decayed, Missing and Filled Teeth) scores did not differ significantly between pregnant and non-pregnant women [16].

Pregnant women who experience frequent vomiting may develop dental erosion [9]. Severe and prolonged vomiting increases the exposure of tooth surfaces to gastric acid, which may increase the risk of erosion [17]. Patients with hyperemesis gravidarum may also have difficulty maintaining adequate oral hygiene [17].

A characteristic, although less common, condition is pyogenic granuloma. It is a benign reactive proliferative lesion that usually bleeds easily. Its development is associated with local factors, such as chronic irritation, as well as hormonal changes [18]. In a meta-analysis of oral mucosal disorders in pregnant women, pyogenic granuloma was reported in approximately 3% of participants [19]. When the lesion does not interfere with function, conservative management and observation until after delivery may be considered [19].

In addition to the conditions described above, gingival hyperplasia, oral candidiasis, geographic tongue, excessive salivation, and dry mouth have also been reported during pregnancy [9,19]. Some of these changes may be temporary. The risk of many oral health problems can be reduced through proper oral hygiene, preventive care, and regular dental visits [9,20,21].

2. Barriers to Dental Care During Pregnancy

Despite the importance of oral health during pregnancy, many women do not receive regular dental care. In the systematic review by Frey-Furtado et al., the most commonly reported barriers included treatment costs, insufficient knowledge about oral health, and concerns about the safety of dental treatment for the fetus [22]. Similar findings were reported in a more recent review by Subramaniam et al., which identified misconceptions, safety concerns, fear of treatment, high costs, and competing pregnancy-related responsibilities among the main barriers [5]. Other barriers include time constraints, pregnancy-related symptoms, the low priority given to oral health, and the influence of family and the social environment [23]. Misconceptions about dental care during pregnancy are also common. In the review by Kamalabadi et al., recurring beliefs included that dental treatment may harm the fetus, that it should be avoided during pregnancy, and even that tooth loss is a natural consequence of pregnancy [24]. In the study by Detman et al., women also reported difficulties in finding a dentist and considered dental problems less urgent than other pregnancy-related needs [25].

Barriers to dental care may also be related to the attitudes and knowledge of healthcare professionals. A systematic review by Anunciação et al. showed that recommendations concerning oral health assessment during pregnancy and referral to a dentist are not always followed in practice [3]. Commonly reported reasons included insufficient training, time constraints, and the belief that oral health problems do not fall within the scope of prenatal care [3,26]. Dentists also reported barriers. Lee et al. found that a lower willingness to provide dental care to pregnant women was associated, among other factors, with organizational and economic constraints, uncertainty about their own skills, and the attitudes of dental office staff [27]. In the study by Lyu et al., most dentists and obstetricians considered oral health during pregnancy to be important, but such practices were less frequently implemented, and many obstetricians reported insufficient knowledge of dental care for pregnant women [28].

Economic and organizational factors are also important. Amin and ElSalhy found that a higher level of education, greater household income, and having dental insurance were associated with more frequent use of dental services during pregnancy [29]. The importance of insurance was also confirmed in a large analysis of data from more than 145,000 women, in which having insurance was a significant determinant of the use of

preventive dental care [30]. Access may also be restricted by limited availability of providers, difficulties in obtaining an appointment, and the lack of an effective referral system between prenatal and dental care [5,22]. Improving the use of dental care during pregnancy requires education of both women and healthcare professionals, as well as better integration of dental and prenatal care [3,5].

3. Dental Treatment and Clinical Management During Pregnancy

3.1. Timing and Safety of Dental Treatment

Pregnancy is not a contraindication to dental treatment. Current recommendations from the American Dental Association and the American College of Obstetricians and Gynecologists indicate that preventive care, diagnostic procedures, and necessary restorative and surgical treatment can be provided at any stage of pregnancy [20,21]. The second trimester is, however, often considered the most convenient period for elective and longer dental procedures [31,32]. Nausea and vomiting are common during the first trimester, while in later stages of pregnancy prolonged treatment in the supine position may be less comfortable for the patient [31,32].

Necessary treatment should not, however, be routinely postponed until the second trimester. Pain, infections, untreated caries, pulpal disease, and acute periodontal problems should be treated when they occur [20,21,31]. This also applies to extractions, endodontic treatment, and restoration of teeth affected by active disease, as delaying treatment may lead to worsening symptoms and the need for more complex intervention later [20,21]. Elective procedures that are not relevant to the patient's current health may instead be considered after delivery [31,32]. In the presence of coexisting complications or uncertainty regarding the planned treatment, management should be individualized and, when necessary, coordinated with the clinician responsible for the patient's prenatal care [32,33].

3.2. Dental Radiography and Local Anesthesia

Dental radiographic examinations may be performed in pregnant women when they are clinically justified and their results may affect the diagnosis or treatment plan [20,21]. Modern dental imaging techniques are associated with very low fetal exposure, and radiation protection is based on limiting the number of radiographs to those that are necessary and using the lowest dose that provides adequate diagnostic information [34,35]. More recent recommendations from the American Academy of Oral and Maxillofacial Radiology and the ADA do not recommend the routine use of lead aprons or thyroid collars during dental radiography, including in pregnant patients, because the radiation dose reaching the fetus is negligible [34,35].

There is also no evidence that local anesthesia should be avoided during pregnancy. Lidocaine with epinephrine is the most commonly used and well-documented option in this group of patients [20,36]. A systematic review including 1,954 pregnant women found no significant differences in the rates of miscarriage, preterm birth, fetal abnormalities, birth weight, or other serious adverse pregnancy outcomes following the use of local anesthesia [36]. Similar findings had previously been reported in a prospective cohort study including 210 pregnancies exposed to local anesthetics during dental treatment [37].

3.3. Medications Used in Dental Care

Pharmacotherapy during pregnancy should be used after assessing the clinical indication and weighing the potential benefits against possible risks [31,38,39]. Paracetamol (acetaminophen) remains the first-line analgesic during pregnancy. ACOG continues to regard it as the preferred analgesic and antipyretic when used as indicated and at an appropriate dose [38]. Nonsteroidal anti-inflammatory drugs require greater caution. The FDA recommends limiting their use between 20 and 30 weeks of pregnancy to situations in which they are necessary and avoiding them from 30 weeks onward because of, among other concerns, the risk of fetal renal impairment, oligohydramnios, and premature closure of the ductus arteriosus [40].

For odontogenic infections, antibiotics may be used during pregnancy when clinically indicated [20,39]. Antibiotics that may be used during pregnancy include penicillins, including amoxicillin, cephalosporins, clindamycin, and metronidazole [20,39]. The choice of antibiotic should take into account the type of infection, the potential risks and benefits of treatment, and the patient's individual clinical situation [39]. Tetracyclines are generally avoided during pregnancy because of their effects on developing mineralized tissues, including the possibility of tooth discoloration in the child [39]. An active infection should not, however, be left untreated solely because of pregnancy [20,39]. In patients with coexisting medical conditions or when there is uncertainty about the safety of a particular drug, current information regarding its use during pregnancy should

be reviewed and, when necessary, the clinician responsible for the patient's prenatal care should be consulted [20].

3.4 Periodontal Care During Pregnancy

Periodontal treatment can be safely provided during pregnancy. Professional plaque and calculus removal and treatment of gingivitis and periodontitis improve maternal periodontal health and are not associated with an increased risk of adverse pregnancy outcomes [20,41]. Available reviews do not provide clear evidence that periodontal treatment reduces the risk of preterm birth or low birth weight. Therefore, periodontal treatment during pregnancy should be aimed primarily at improving maternal periodontal health rather than preventing obstetric complications [41].

4. Prevention and Oral Health Education

Prevention during pregnancy is based primarily on maintaining good oral hygiene, appropriate dietary habits, and regular dental care. Brushing twice daily with fluoride toothpaste and daily interdental cleaning are recommended [20,21]. Frequent consumption of foods and beverages containing sugars, particularly between meals, should also be limited [21]. Pregnant women should be encouraged to attend regular dental check-ups and to seek dental care if they experience pain, gingival bleeding, or other symptoms rather than postponing treatment until after delivery [20,21].

In patients experiencing nausea and vomiting, particular attention should be paid to the risk of dental erosion, as repeated exposure of the teeth to acidic gastric contents may contribute to dental erosion [20,21]. Brushing immediately after vomiting is not recommended [20]. Instead, the mouth may be rinsed with water or a sodium bicarbonate solution to help neutralize the acidic environment [20,21]. Toothbrushing can be performed later, once the effect of the acid on the enamel surface has decreased [20].

Education of pregnant women is also an important part of prevention. Reviews indicate that educational programs provided during pregnancy may improve women's knowledge, oral hygiene behaviors, and oral health, while some interventions may also provide benefits in terms of caries prevention in children [42,43]. Regular contact with healthcare services during pregnancy facilitates the delivery of health education [21]. Women may also be particularly receptive to preventive measures during this period [21]. Oral health education should not be the responsibility of dentists alone. Gynecologists, midwives, and other prenatal care providers can also address oral health, provide basic recommendations, and refer patients to a dentist when needed [3,44]. In the study by George et al., a program involving education, oral health assessment, and referral to a dentist by trained midwives, supplemented by access to dental care, increased the use of dental services and improved women's knowledge [45]. More recent data continue to indicate important gaps in knowledge among both pregnant women and some healthcare professionals, supporting the inclusion of oral health education as part of prenatal care [44,46].

Discussion

Available evidence shows that oral health problems are common during pregnancy, including gingivitis, periodontal disease, dental caries, dental erosion, and some oral mucosal changes [9]. The risk of developing or worsening many of these conditions can be reduced through good oral hygiene, preventive care, and regular dental visits [9,20,21]. Current recommendations indicate that necessary dental treatment can be safely provided during pregnancy. Radiographic examinations, local anesthesia, restorative and endodontic treatment, and tooth extractions may be performed when clinically indicated [20,21].

The association between periodontal disease and pregnancy outcomes has been examined in numerous studies. Observational studies have linked periodontitis with preterm birth, low birth weight, and preeclampsia, although the available evidence does not allow a clear causal relationship to be established [13-15]. It has also not been clearly demonstrated that periodontal treatment during pregnancy reduces the risk of these complications. Therefore, its primary aim remains to improve maternal periodontal health [41].

Although necessary dental treatment can be safely provided during pregnancy, the utilization of dental care among pregnant women remains low. Available reviews point to concerns about treatment safety, misconceptions regarding the effects of dental procedures on the fetus, fear of anesthesia and radiography, and economic and organizational barriers [5,22]. Knowledge gaps, uncertainty regarding the safety of treatment, and insufficient referral of pregnant patients to dentists have also been reported among dentists, obstetricians, and other professionals involved in prenatal care [3,26].

Better coordination between dental and prenatal care could help reduce some of these problems [3,44]. Education provided as part of dental and prenatal care may improve patients' knowledge, oral health behaviors, and use of dental services [42,43,45]. Regular contact with healthcare services during pregnancy makes it easier to provide this type of education [21].

This review also has several limitations. As a narrative review, it does not include a systematic assessment of the quality of all available studies. In addition, the included publications differ in terms of study populations, methodology, and healthcare systems, which may limit direct comparison of the findings and their generalizability.

Conclusions

Pregnancy is associated with increased susceptibility to certain oral health problems, particularly gingivitis, periodontal disease, dental caries, and dental erosion. The risk of developing or worsening many of these conditions can be reduced through proper oral hygiene, preventive care, and regular dental visits. Diagnostic procedures and necessary dental treatment can be safely provided during pregnancy when clinically indicated.

Many women still avoid or postpone dental visits. The main reasons include concerns about treatment safety, misconceptions, economic and organizational barriers, and insufficient knowledge among some healthcare professionals. Better patient education and closer cooperation between dentists, gynecologists, midwives, and other professionals involved in prenatal care may help improve access to appropriate dental care.

Author contributions:

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Data analysis and interpretation - Maria Torchalska, Martyna Smogór, Monika Szerszeń

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